SounPacific
Environmental Services
(707) 269-0884

QUARTERLY GROUNDWATER MONITORING REPORT

Third Quarter 2005 (Thirteenth Quarterly)

Sampled on July 26, 2005

Job # SP-150

LOP # 12170

Big Oil & Tire - Glendale BP (**Glendale 76**)
1497 Glendale Road
Arcata, California 95521

November 14, 2005

This *Quarterly Groundwater Monitoring Report* was prepared by SounPacific staff for Big Oil & Tire Co. (BO&T), and includes data from previous studies that were conducted by Clearwater Group, Inc. (CGI) and information from a review of relevant files conducted at Humboldt County Department of Health and Human Services: Division of Environmental Health (HCDEH). The station is located at 1497 Glendale Road, in Arcata, California (Figure 1).

SITE DESCRIPTION

The subject property is a former automobile service station that consists of a single story structure with an attached storage building. Surfaces on the site consist of concrete, asphalt, gravel, and vegetation. The main structure is positioned in the center of the property with the entrance to the building facing south towards Glendale Road. A second storage building is located next to the eastern property line in the southern portion of the property (Figure 2). The site is currently closed to the public and future plans for the property are unknown at this time.

Four (4) 4,000-gallon underground storage tanks (USTs) were located in a single excavation adjacent to the southeast corner of the primary structure, and were previously used for storage of three (3) grades of unleaded gasoline. Two (2) dispensers, which were previously used for dispensing fuel onsite, were located on a cement island adjacent to the entrance of the primary structure. A second cement island was located adjacent to the southern property line but was recently removed with the piping by Beacom Construction. The site is serviced by public utilities. Surface water flows into storm drains (Figure 2).

SITE TOPOGRAPHY AND LAND USE

The subject property was previously used as a retail gas station and mini-mart. All known USTs have been removed and the property is currently vacant. The site is located approximately 1,200 feet north of the Mad River and approximately 96 feet above mean sea level (amsl). The site is located in an area of low topographic relief (Figure 1). Surrounding land use in the immediate vicinity is rural with an interspersion of commercial and residential properties. Murphy's Market resides adjacent to the west of the site. Residential properties lie directly to the east of the site. Blue Lake Forest Products lies adjacent to the north of the site. Glendale Road runs adjacent to the southern property line. A commercial storage yard lies directly to the south of the site, adjacent to the south side of Glendale Road.

RESULTS OF QUARTERLY SAMPLING

Under the approval of HCDEH, SounPacific is continuing with quarterly groundwater monitoring until further notice. Quarterly water level data will be input into a three-point gradient problem to generate a two-dimensional groundwater elevation contour diagram and calculate groundwater flow direction. Quarterly sampling events monitor the fluctuation of hydrocarbon contamination levels present in groundwater beneath the site. Monitoring wells were gauged and sampled on July 26, 2005.

FIELD DATA

Wells gauged: MW-1, 2, 3, and 4

Groundwater: Ranged from 83.01 to 83.33 feet amsl (Table 1)

Floating product: No floating product or sheen detected

GW flow direction: S (Figure 3)

GW Gradient: 0.004 feet per foot (Figure 3)

On July 26, 2005, the depth to groundwater in the site's four (4) monitoring wells ranged from 12.93 feet below top of casing (btoc) in well MW-3 to 13.44 feet btoc in MW-2. When corrected to mean sea level, water level elevations ranged from 83.01 feet above mean sea level (amsl) in MW-2 to 83.33 feet amsl in MW-4. Groundwater levels for the July 26, 2005 monitoring event, along with historical levels and elevations are included in Table 1. Groundwater flow was determined to be very flat, with a gradient towards the south at 0.004 feet per foot. The groundwater flow and gradient are graphically depicted in Figure 3. Prior to sampling, all wells were purged; the groundwater field parameters for each well are presented below.

MONITORING WELL MW-1 GROUNDWATER FIELD PARAMETERS

Time	Total Vol. Removed/ gal	pH	Temp./ F	Cond./ ms(cm)$^{-1}$
3:19	0	7.76	60.59	0.168
3:24	1	6.85	60.35	0.163
3:35	2	6.63	61.00	0.157
3:37	3	6.44	60.02	0.158

MONITORING WELL MW-2 GROUNDWATER FIELD PARAMETERS

Time	Total Vol. Removed/ gal	pH	Temp./ F	Cond./ ms(cm)$^{-1}$
3:55	0	6.50	61.43	0.128
3:58	1	6.39	61.55	0.137
4:04	2	6.19	61.06	0.148
4:08	3.3	6.26	61.84	0.147

MONITORING WELL MW-3 GROUNDWATER FIELD PARAMETERS

Time	Total Vol. Removed/ gal	pH	Temp./ F	Cond./ ms(cm)$^{-1}$
4:30	0	6.28	60.08	0.038
4:34	1	6.11	60.35	0.043
4:37	2	5.94	60.22	0.042
4:41	3.3	5.89	59.85	0.041

MONITORING WELL MW-4 GROUNDWATER FIELD PARAMETERS

Time	Total Vol. Removed/ gal	pH	Temp./ F	Cond./ ms(cm)$^{-1}$
5:00	0	6.48	59.10	0.142
5:04	1	6.41	58.69	0.150
5:07	2	6.37	58.44	0.140
5:12	3.3	6.31	58.49	0.141

ANALYTICAL RESULTS

Sampling locations: MW-1, 2, 3, and 4

Analyses performed: TPHg, BTXE, MTBE, DIPE, TAME, ETBE, TBA, TPHd, TPHmo

Laboratories Used: Basic Laboratory, Inc., Redding, California (CA ELAP Cert #1677)

The analytical results for the current monitoring event are presented below and graphically depicted in Figure 4. The laboratory report is included as Appendix A. The historical analytical results for all monitoring wells, since the implementation of groundwater monitoring, are included as Table 2.

	MW-1 (ppb)	**MW-2 (ppb)**	**MW-3 (ppb)**	**MW-4 (ppb)**
TPHg:	ND < 60	**78.7**	**88.9**	**391**
Benzene:	ND < 0.5	ND < 0.5	**12.4**	**4.4**
Toluene:	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Xylenes:	ND < 1.0	ND < 1.0	ND < 1.0	**5.2**
Ethylbenzene:	ND < 0.5	ND < 0.5	ND < 0.5	**3.1**
MTBE:	**37.9**	**68.5**	**33.6**	**49.6**
DIPE:	**----**	**----**	**----**	ND < 0.5
TAME:	**----**	**----**	**----**	**6.1**
ETBE:	**----**	**----**	**----**	ND < 0.5
TBA:	**----**	**----**	**----**	ND < 50
TPHd:	ND < 50	**58**	ND < 50	**347**
TPHmo:	**146**	**168**	**60**	**71**

(ND = non-detectable)

(---- : analysis not conducted)

COMMENTS AND RECOMMENDATIONS

On July 26, 2005, the 13th groundwater monitoring event since the well installation and initial sampling in May 2002 of the site's four (4) groundwater monitoring wells, was conducted at the Glendale 76 property at 1497 Glendale Road, Arcata, California. A summary of the results are presented below.

The depth to groundwater in the four (4) wells onsite ranged between 12.93 feet btoc (MW-3) to 13.44 feet btoc (MW-2). Groundwater flow was towards the south at a gradient of 0.004 feet per foot.

Groundwater samples from the four (4) onsite monitoring wells (MW-1 through MW-4) were collected and analyzed for TPHg, BTXE, MTBE, TPHd, and TPHmo. The sample from well MW-4 was also analyzed for four (4) additional fuel-oxygenates. Laboratory results reported TPHg in three (3) wells (MW2, MW3, and MW-4) at concentrations ranging between 78.7 ppb (MW-2) and 391 ppb (MW-4). Benzene was reported in two (2) wells only, at concentrations of 4.4 ppb (MW-4) and 12.4 ppb (MW-3). Xylenes and ethylbenzene were reported in well MW-4 at concentrations of 5.2 ppb and 3.1 ppb, respectively. Toluene was absent in all four (4) wells. Of the fuel-oxygenates, MTBE was reported in all four (4) wells at concentrations ranging between 33.6 ppb (MW-3) and 68.5 ppb (MW-2) and TAME was reported in well MW-4 only at a concentration of 6.1 ppb. No other fuel-oxygenates were reported. Laboratory results reported TPHd in two (2) wells at concentrations of 58 ppb (MW-2) and 347 ppb (MW-4), and TPHmo in all four (4) wells at concentrations ranging between 60 ppb (MW-3) and 168 ppb (MW-2).

Based upon these results the following observations and conclusions have been made:

Detectable levels of TPHg have been reported in well MW-1 during seven (7) out of the site's fourteen sampling events. TPHg has been detected in well MW-2 during ten (10) sampling events of the monitoring program and has been decreasing over time. TPHg has consistently

been reported in wells MW-3 and MW-4, since the third quarter 2004, with concentrations fluctuating over time.

Since the implementation of groundwater monitoring, BTXE compounds have been reported during different monitoring events in all wells. BTXE levels in well MW-1 have been inconsistent, but when present, the levels have been low. With the exception of a low level of toluene in October 2004, BTXE compounds have consistently been absent in well MW-2 since the first quarter 2003. Since the inception of groundwater monitoring, the presence and levels of BTXE in wells MW-3 and MW-4 have shown significant variation.

MTBE is the only fuel-oxygenate that is currently being analyzed in monitoring wells MW-1 through MW-3. Monitoring well MW-4 is analyzed for DIPE, TAME, ETBE, and TBA in addition to MTBE. MTBE has consistently been present in all four (4) wells since the inception of groundwater monitoring. During the initial monitoring event, MTBE was above 1,000 ppb in all wells, however, during the last monitoring event all levels were below 70 ppb, indicating a general decrease in MTBE levels in all wells over time. However, during recent monitoring events, MTBE levels have shown significant variation.

DIPE and ETBE have not been reported in any wells since the inception of groundwater monitoring.

TAME was only analyzed in well MW-4 during the last two (2) monitoring events, but had previously been consistently present in all four (4) wells prior to that time. Over time, TAME concentrations have generally reported a decrease since the inception of groundwater monitoring.

TBA was only analyzed in well MW-4 during the last monitoring event. TBA was not reported in any of the site's wells during the initial monitoring events. However, since January 2003, TBA has been reported approximately 30% of the time, with the highest concentrations being reported in well MW-4. TBA levels have consistently decreased in well MW-4 during the last four (4) quarterly sampling events.

TPHd was present in wells MW-2 and Mw-4 during the July 2005 monitoring event. TPHd has inconsistently been reported in all four (4) monitoring wells, with the most consistency and highest concentrations being reported in well MW-4. Overall, TPHd concentrations seem to be decreasing with time at this site, with only well MW-4 currently having levels above water quality objectives.

TPHmo has consistently been reported in wells MW-1, MW-2, and MW-4 during the last three (3) monitoring events and in well MW-3 during the last two (2) monitoring events. Prior to these events TPHmo has never been reported in any of the wells. However, the levels are generally low and not considered to be a major concern.

Based on the results of the July 2005 monitoring event and historical results, the following future activities are proposed.

Groundwater monitoring will be continued until further notice. Groundwater level measurements will be collected from the four (4) onsite monitoring wells to determine groundwater flow direction and gradient. Collected groundwater samples from all wells will be analyzed for TPHg, BTXE, five (5) fuel-oxygenates, TPHd, and TPHmo.

In accordance with SounPacific's Work Plan of August 30, 2005, and HCDEH approval letter of September 9, 2005, additional subsurface investigation has been conducted in an attempt to delineate the extent of any soil contamination at the site. In addition, the product piping and dispensers have been removed. This data is currently being evaluated and will be submitted to HCDEH in due course. Based upon this data additional site investigation and/or remedial action will be proposed.

CERTIFICATION

This report was prepared under the direct supervision of a California registered geologist at SounPacific. All information provided in this report including statements, conclusions and recommendations are based solely upon field observations and analyses performed by a state-certified laboratory. SounPacific is not responsible for laboratory errors.

SounPacific promises to perform all its work in a manner that is currently used by members in similar professions working in the same geographic area. SounPacific will do whatever is reasonable to ensure that data collection is accurate. Please note however, that rain, buried utilities, and other factors can influence groundwater depths, directions and other factors beyond what SounPacific could reasonably determine.

SounPacific

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ATTACHMENTS

TABLES & CHART

FIGURES

APPENDICES

Tables & Chart

Table 1
Water Levels
Glendale 76
1497 Glendale Road
Arcata, California 95521

Sample Location	Date	Depth to Bottom/ Feet BTOC	Survey Height/ Feet Above MSL	Depth to Water/ Feet BTOC	Adjusted Elevation/ Feet Above MSL	Thickness of Floating Product/ Feet
MW-1	5/3/2002	19.08	96.47	12.25	84.22	0.00
	6/10/2002	19.22	96.47	13.91	82.56	0.00
	7/12/2002	19.40	96.47	15.58	80.89	0.00
	8/17/2002	18.99	96.47	16.45	80.02	0.00
	9/11/2002	18.97	96.47	16.71	79.76	0.00
	10/11/2002	18.98	96.47	16.92	79.55	0.00
	11/15/2002	18.99	96.47	16.76	79.71	0.00
	12/16/2002	19.29	96.47	14.94	81.53	0.00
	1/12/2003	18.99	96.47	8.74	87.73	0.00
	2/14/2003	18.99	96.47	10.90	85.57	0.00
	3/17/2003	19.29	96.47	11.17	85.30	0.00
	4/12/2003	18.99	96.47	8.89	87.58	0.00
	7/14/2003	19.17	96.47	15.09	81.38	0.00
	10/21/2003	19.17	96.47	17.02	79.45	0.00
	1/16/2004	19.17	96.47	9.44	87.03	0.00
	4/23/2004	19.17	96.47	12.02	84.45	0.00
	7/31/2004	19.18	96.47	15.15	81.32	0.00
	10/30/2004	18.90	96.47	14.51	81.96	0.00
	1/23/2005	19.19	96.47	10.33	86.14	0.00
	4/30/2005	19.19	96.47	10.94	85.53	0.00
	7/26/2005	19.08	96.47	13.32	83.15	0.00
MW-2	5/3/2002	19.15	96.45	12.65	83.80	0.00
	6/10/2002	19.02	96.45	14.30	82.15	0.00
	7/12/2002	19.00	96.45	15.95	80.50	0.00
	8/17/2002	18.86	96.45	16.50	79.95	0.00
	9/11/2002	18.90	96.45	16.79	79.66	0.00
	10/11/2002	18.84	96.45	17.01	79.44	0.00
	11/15/2002	18.87	96.45	16.86	79.59	0.00
	12/16/2002	19.14	96.45	15.35	81.10	0.00
	1/12/2003	18.89	96.45	9.16	87.29	0.00
	2/14/2003	18.91	96.45	11.12	85.33	0.00
	3/17/2003	19.14	96.45	11.47	84.98	0.00
	4/12/2003	18.89	96.45	9.24	87.21	0.00
	7/14/2003	19.04	96.45	15.26	81.19	0.00
	10/21/2003	19.04	96.45	17.10	79.35	0.00
	1/16/2004	19.04	96.45	9.78	86.67	0.00
	4/23/2004	19.04	96.45	12.31	84.14	0.00
	7/31/2004	18.99	96.45	15.29	81.16	0.00
	10/30/2004	18.60	96.45	14.71	81.74	0.00
	1/23/2005	18.90	96.45	10.62	85.83	0.00
	4/30/2005	18.70	96.45	11.16	85.29	0.00
	7/26/2005	19.81	96.45	13.44	83.01	0.00

Table 1 (cont.)
Water Levels
Glendale 76
1497 Glendale Road
Arcata, California 95521

Sample Location	Date	Depth to Bottom/ Feet BTOC	Survey Height/ Feet Above MSL	Depth to Water/ Feet BTOC	Adjusted Elevation/ Feet Above MSL	Thickness of Floating Product/ Feet
MW-3	5/3/2002	19.22	96.08	12.20	83.88	0.00
	6/10/2002	19.20	96.08	13.70	82.38	0.00
	7/12/2002	19.21	96.08	15.20	80.88	0.00
	8/17/2002	19.04	96.08	16.04	80.04	0.00
	9/11/2002	19.10	96.08	16.28	79.80	0.00
	10/11/2002	19.02	96.08	16.48	79.60	0.00
	11/15/2002	19.20	96.08	16.40	79.68	0.00
	12/16/2002	19.45	96.08	11.59	84.49	0.00
	1/12/2003	19.17	96.08	8.46	87.62	0.00
	2/14/2003	19.17	96.08	10.81	85.27	0.00
	3/17/2003	19.45	96.08	10.98	85.10	0.00
	4/12/2003	19.17	96.08	8.64	87.44	0.00
	7/14/2003	19.37	96.08	14.76	81.32	0.00
	10/21/2003	19.37	96.08	16.61	79.47	0.00
	1/16/2004	19.37	96.08	9.21	86.87	0.00
	4/23/2004	19.37	96.08	11.74	84.34	0.00
	7/31/2004	19.44	96.08	14.72	81.36	0.00
	10/30/2004	19.13	96.08	14.21	81.87	0.00
	1/23/2005	19.43	96.08	10.18	85.90	0.00
	4/30/2005	19.35	96.08	10.70	85.38	0.00
	7/26/2005	19.29	96.08	12.93	83.15	0.00
MW-4	5/3/2002	19.15	96.27	11.84	84.43	0.00
	6/10/2002	19.13	96.27	13.46	82.81	0.00
	7/12/2002	19.10	96.27	15.08	81.19	0.00
	8/17/2002	19.00	96.27	16.04	80.23	0.00
	9/11/2002	19.00	96.27	16.33	79.94	0.00
	10/11/2002	19.00	96.27	16.50	79.77	0.00
	11/15/2002	19.12	96.27	16.41	79.86	0.00
	12/16/2002	19.30	96.27	13.25	83.02	0.00
	1/12/2003	19.07	96.27	8.21	88.06	0.00
	2/14/2003	19.11	96.27	10.53	85.74	0.00
	3/17/2003	13.25	96.27	10.64	85.63	0.00
	4/12/2003	19.07	96.27	8.37	87.90	0.00
	7/14/2003	19.27	96.27	14.69	81.58	0.00
	10/21/2003	19.27	96.27	16.67	79.60	0.00
	1/16/2004	19.27	96.27	8.95	87.32	0.00
	4/23/2004	19.27	96.27	11.51	84.76	0.00
	7/31/2004	19.36	96.27	14.70	81.57	0.00
	10/30/2004	19.07	96.27	14.15	82.12	0.00
	1/23/2005	19.35	96.27	9.97	86.30	0.00
	4/30/2005	19.28	96.27	10.60	85.67	0.00
	7/26/2005	19.31	96.27	12.94	83.33	0.00

Notes:
BTOC: Below Top of Casing
MSL: Mean Sea Level

Table 2
Groundwater Analytical Results

Glendale 76
1497 Glendale Road
Arcata, California 95521

Sample Location	Sample Event	Annual Quarter	Sample Date	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Xylenes (ppb)	Ethylbenzene (ppb)	MTBE (ppb)	DIPE (ppb)	TAME (ppb)	ETBE (ppb)	TBA (ppb)	TPHd (ppb)	TPHmo (ppb)
MW-1	Well Installation	Second Quarter	5/3/2002	**8,605**	**2.9**	ND < 0.3	ND < 0.6	ND < 0.3	**3,270**	ND < 0.5	**559**	ND < 0.5	ND < 100	-----	-----
	First Quarterly	Third Quarter	7/12/2002	**345**	**0.9**	ND < 0.3	ND < 0.6	ND < 0.3	**257**	ND < 0.5	**53.4**	ND < 0.5	ND < 100	-----	-----
	Second Quarterly	Fourth Quarter	10/11/2002	ND < 1,000	ND < 6.0	ND < 6.0	ND < 12.0	ND < 6.0	**200**	ND < 10	**38.6**	ND < 10	ND < 2,000	ND < 50	ND < 50
	Third Quarterly	First Quarter	1/12/2003	**5,900**	**18**	**0.7**	**92**	**1.0**	**1,100**	ND < 0.5	**160**	ND < 0.5	**120**	**240**	ND < 500
	Fourth Quarterly	Second Quarter	4/12/2003	**420**	**8.7**	ND < 0.5	**10**	**0.9**	**1,000**	ND < 0.5	**130**	ND < 0.5	**130**	ND < 50	ND < 500
	Fifth Quarterly	Third Quarter	7/14/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**79**	ND < 0.5	**15**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Sixth Quarterly	Fourth Quarter	10/21/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**20**	ND < 0.5	**4.0**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Seventh Quarterly	First Quarter	1/16/2004	**190**	**3.6**	ND < 0.5	**12**	**1.4**	**450**	ND < 0.5	**71**	ND < 0.5	**21**	ND < 50	ND < 500
	Eighth Quarterly	Second Quarter	4/23/2004	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**31**	ND < 0.5	**7.6**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Ninth Quarterly	Third Quarter	7/31/2004	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**19**	ND < 0.5	**3.9**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Tenth Quarterly	Fourth Quarter	10/30/2004	ND < 50	ND < 0.5	**1.1**	ND < 1.0	ND < 0.5	**18**	ND < 0.5	**4.3**	ND < 0.5	ND < 5.0	**92**	ND < 500
	Eleventh Quarterly	first Quarter	1/23/2005	**359**	**2.7**	ND < 2.5	ND < 5.0	ND < 2.5	**315**	ND < 2.5	**55.6**	ND < 25.0	ND < 250	**110**	**58**
	Twelve Quarterly	Second Quarter	4/30/2005	**389**	ND < 2.0	ND < 2.0	ND < 4.0	ND < 2.0	**277**	-----	-----	-----	-----	**68**	**77**
	Thirteenth Quarterly	Third Quarter	7/26/2005	ND < 60	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**37.9**	-----	-----	-----	-----	ND < 50	**146**
MW-2	Well Installation	Second Quarter	5/3/2002	**1,860**	**28.8**	**0.9**	**1.4**	**0.6**	**1,060**	ND < 0.5	**204**	ND < 0.5	ND < 100	-----	-----
	First Quarterly	Third Quarter	7/12/2002	**684**	**10.5**	ND < 0.3	**3.8**	ND < 0.3	**422**	ND < 0.5	**100**	ND < 0.5	ND < 100	-----	-----
	Second Quarterly	Fourth Quarter	10/11/2002	ND < 1,000	ND < 6.0	ND < 6.0	ND < 12.0	ND < 6.0	**144**	ND < 10	**27.0**	ND < 10	ND < 2,000	ND < 50	ND < 50
	Third Quarterly	First Quarter	1/12/2003	**490**	**35**	ND < 0.5	**10.7**	ND < 0.5	**640**	ND < 0.5	**110**	ND < 0.5	**79**	**60**	ND < 500
	Fourth Quarterly	Second Quarter	4/12/2003	**180**	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**240**	ND < 0.5	**49**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Fifth Quarterly	Third Quarter	7/14/2003	**170**	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	**310**	ND < 0.5	**59**	ND < 0.5	**59**	ND < 50	ND < 500
	Sixth Quarterly	Fourth Quarter	10/21/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**16**	ND < 0.5	**3.0**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Seventh Quarterly	First Quarter	1/16/2004	**120**	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	**160**	ND < 0.5	**30**	ND < 0.5	**18**	ND < 50	ND < 500
	Eighth Quarterly	Second Quarter	4/23/2004	ND < 500	ND < 5.0	ND < 5.0	ND < 10.0	ND < 5.0	**180**	ND < 5.0	**40**	ND < 5.0	ND < 50	ND < 50	ND < 500
	Ninth Quarterly	Third Quarter	7/31/2004	**73**	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**86**	ND < 0.5	**19**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Tenth Quarterly	Fourth Quarter	10/30/2004	**71**	ND < 0.5	**0.7**	ND < 1.0	ND < 0.5	**50**	ND < 0.5	**10**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Eleventh Quarterly	First Quarter	1/23/2005	**122**	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**102**	ND < 0.5	**24.2**	ND < 5.0	ND < 50.0	ND < 50	**81**
	Twelve Quarterly	Second Quarter	4/30/2005	ND < 60	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**54.7**	----	----	----	----	ND < 50	**100**
	Thirteenth Quarterly	Third Quarter	7/26/2005	**78.7**	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	**68.5**	----	----	----	----	**58**	**168**

Table 2 (cont.)
Groundwater Analytical Results

Glendale 76
1497 Glendale Road
Arcata, California 95521

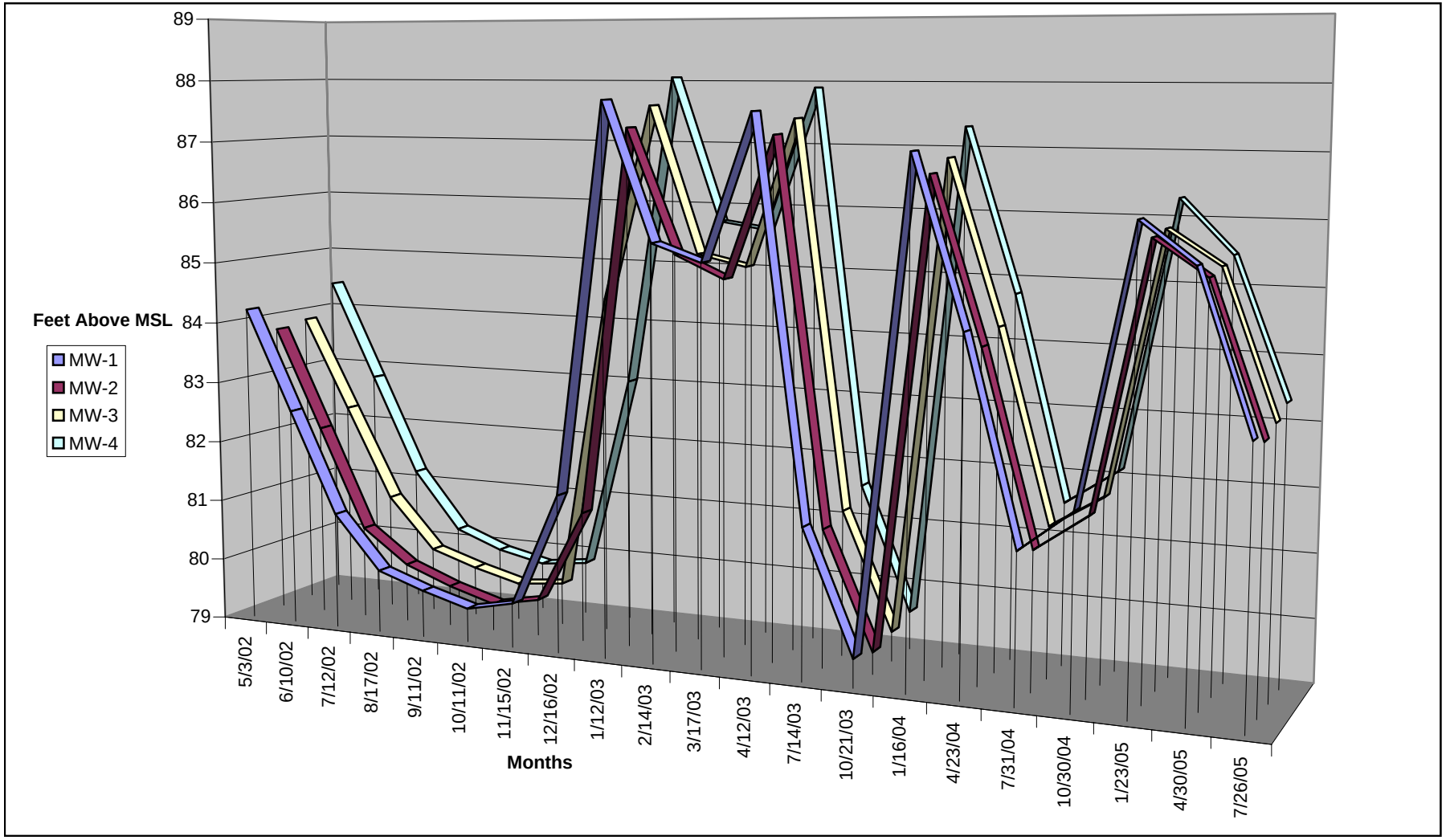
Sample Location	Sample Event	Annual Quarter	Sample Date	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Xylenes (ppb)	Ethylbenzene (ppb)	MTBE (ppb)	DIPE (ppb)	TAME (ppb)	ETBE (ppb)	TBA (ppb)	TPHd (ppb)	TPHmo (ppb)
MW-3	Well Installation	Second Quarter	5/3/2002	**8,900**	**387**	**378**	**743**	**352**	**1,080**	ND < 0.5	**37.2**	ND < 0.5	ND < 100	-----	-----
	First Quarterly	Third Quarter	7/12/2002	**5,720**	**376**	**94.3**	**258**	**230**	**1,240**	ND < 5.0	**285**	ND < 5.0	ND < 1,000	-----	-----
	Second Quarterly	Fourth Quarter	10/11/2002	ND < 5,000	**318**	ND < 30.0	ND < 60.0	ND < 30.0	**1,270**	ND < 100	**369**	ND < 100	ND < 10,000	**381**	ND < 50
	Third Quarterly	First Quarter	1/12/2003	**1,100**	**19**	**62**	**48**	**18**	**38**	ND < 0.5	**8.8**	ND < 0.5	ND < 5.0	**110**	ND < 500
	Fourth Quarterly	Second Quarter	4/12/2003	**300**	**21**	**45**	**30.4**	**14**	**34**	ND < 0.5	**9.2**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Fifth Quarterly	Third Quarter	7/14/2003	**2,000**	**170**	**11**	**44**	**58**	**330**	ND < 5.0	**97**	ND < 5.0	ND < 50	**210**	ND < 500
	Sixth Quarterly	Fourth Quarter	10/21/2003	**690**	**42**	ND < 5.0	ND < 10.0	ND < 5.0	**230**	ND < 5.0	**58**	ND < 5.0	ND < 50	**74**	ND < 500
	Seventh Quarterly	First Quarter	1/16/2004	**150**	**5.2**	**12**	**9.2**	**5.9**	**6.6**	ND < 0.5	**2.1**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Eighth Quarterly	Second Quarter	4/23/2004	ND < 50	**0.5**	ND < 0.5	**0.7**	**0.7**	**1.5**	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Ninth Quarterly	Third Quarter	7/31/2004	**700**	**7.6**	ND < 0.5	ND < 1.0	**2.4**	**110**	ND < 0.5	**35**	ND < 0.5	**42**	**110**	ND < 500
	Tenth Quarterly	Fourth Quarter	10/30/2004	**1,000**	**14**	**9.8**	**14**	**8.8**	**23**	ND < 0.5	**6.9**	ND < 0.5	ND < 5.0	**130**	ND < 500
	Eleventh Quarterly	First Quarter	1/23/2005	**498**	**102**	**7.2**	**68.9**	**3.4**	**90.6**	ND < 0.5	**19.5**	ND < 5.0	ND < 50.0	ND < 50	ND < 50
	Twelve Quarterly	Second Quarter	4/30/2005	**7,030**	**14.6**	**635**	**1,890**	**306**	**21.0**	----	----	----	----	ND < 50	**52**
	Thirteenth Quarterly	Third Quarter	7/26/2005	**88.9**	**12.4**	ND < 0.5	ND < 1.0	ND < 0.5	**33.6**	----	----	----	----	ND < 50	**60**
MW-4	Well Installation	Second Quarter	5/3/2002	**3,150**	**138**	**40**	**124**	**49.5**	**1,050**	ND < 0.5	**131**	ND < 0.5	-----	-----	-----
	First Quarterly	Third Quarter	7/12/2002	**2,850**	**256**	**17.5**	**181**	**167**	**1,820**	ND < 0.5	**241**	ND < 0.5	ND < 100	-----	-----
	Second Quarterly	Fourth Quarter	10/11/2002	**1,520**	**117**	ND < 0.3	**111**	**66.7**	**732**	ND < 5.0	**115**	ND < 5.0	ND < 1,000	ND < 50	ND < 50
	Third Quarterly	First Quarter	1/12/2003	**16,000**	**220**	**170**	**1,900**	**340**	**1,500**	ND < 50	**160**	ND < 50	ND < 500	**3,000**	ND < 500
	Fourth Quarterly	Second Quarter	4/12/2003	ND < 1,000	**210**	**180**	**1,320**	**430**	**1,100**	ND < 50	**130**	ND < 50	ND < 500	**3,800**	ND < 500
	Fifth Quarterly	Third Quarter	7/14/2003	**770**	**33**	ND < 5.0	**17**	**20**	**180**	ND < 5.0	**29**	ND < 5.0	ND < 50	**63**	ND < 500
	Sixth Quarterly	Fourth Quarter	10/21/2003	**970**	**80**	ND < 5.0	**7.8**	**21**	**540**	ND < 5.0	**85**	ND < 5.0	ND < 50	**260**	ND < 500
	Seventh Quarterly	First Quarter	1/16/2004	**4,200**	**90**	**29**	**710**	**220**	**550**	ND < 5.0	**73**	ND < 5.0	**420**	ND < 50	ND < 500
	Eighth Quarterly	Second Quarter	4/23/2004	**1,300**	**26**	ND < 5.0	**79**	**34**	**170**	ND < 5.0	**27**	ND < 5.0	**170**	**150**	ND < 500
	Ninth Quarterly	Third Quarter	7/31/2004	**78**	**2.9**	ND < 0.5	ND < 1	**1.1**	**12**	ND < 0.5	**1.9**	ND < 0.5	ND < 5.0	ND < 50	ND < 500
	Tenth Quarterly	Fourth Quarter	10/30/2004	**8,800**	**230**	**32**	**1,600**	**650**	**940**	ND < 5.0	**200**	ND < 5.0	**640**	**1,500**	ND < 500
	Eleventh Quarterly	First Quarter	1/23/2005	**872**	**24.2**	**2.3**	**109**	**57.0**	**312.0**	ND < 1.2	**30.6**	ND < 12.5	**198**	**585**	**52**
	Twelve Quarterly	Second Quarter	4/30/2005	**1,280**	**17.8**	**20.0**	**92.4**	**49.3**	**133**	ND < 1.0	**14.5**	ND < 1.0	**131**	**401**	**92**
	Thirteenth Quarterly	Third Quarter	7/26/2005	**391**	**4.4**	ND < 0.5	**5.2**	**3.1**	**49.6**	ND < 0.5	**6.1**	ND < 0.5	ND < 50	**347**	**71**

Notes:
TPHg: Total Petroleum Hydrocarbons as gasoline
MTBE: Methyl tertiary butyl ether
DIPE: Diisopropyl Ether
TAME: Tertiary amyl methyl ether
ETBE: Ethyl tertiary butyl ether
TBA: Tertiary butanol
TPHd: Total Petroleum Hydrocarbons as diesel
TPHmo: Total petroleum hydrocarbons as motor oil
ppb: parts per billion = µg/l = .001 mg/l = 0.001 ppm
ND: Not detected. Sample was detected at or below the method detection limit as shown.

Chart 1

Monthly Hydrograph

Glendale 76
1497 Glendale Road
Arcata, California



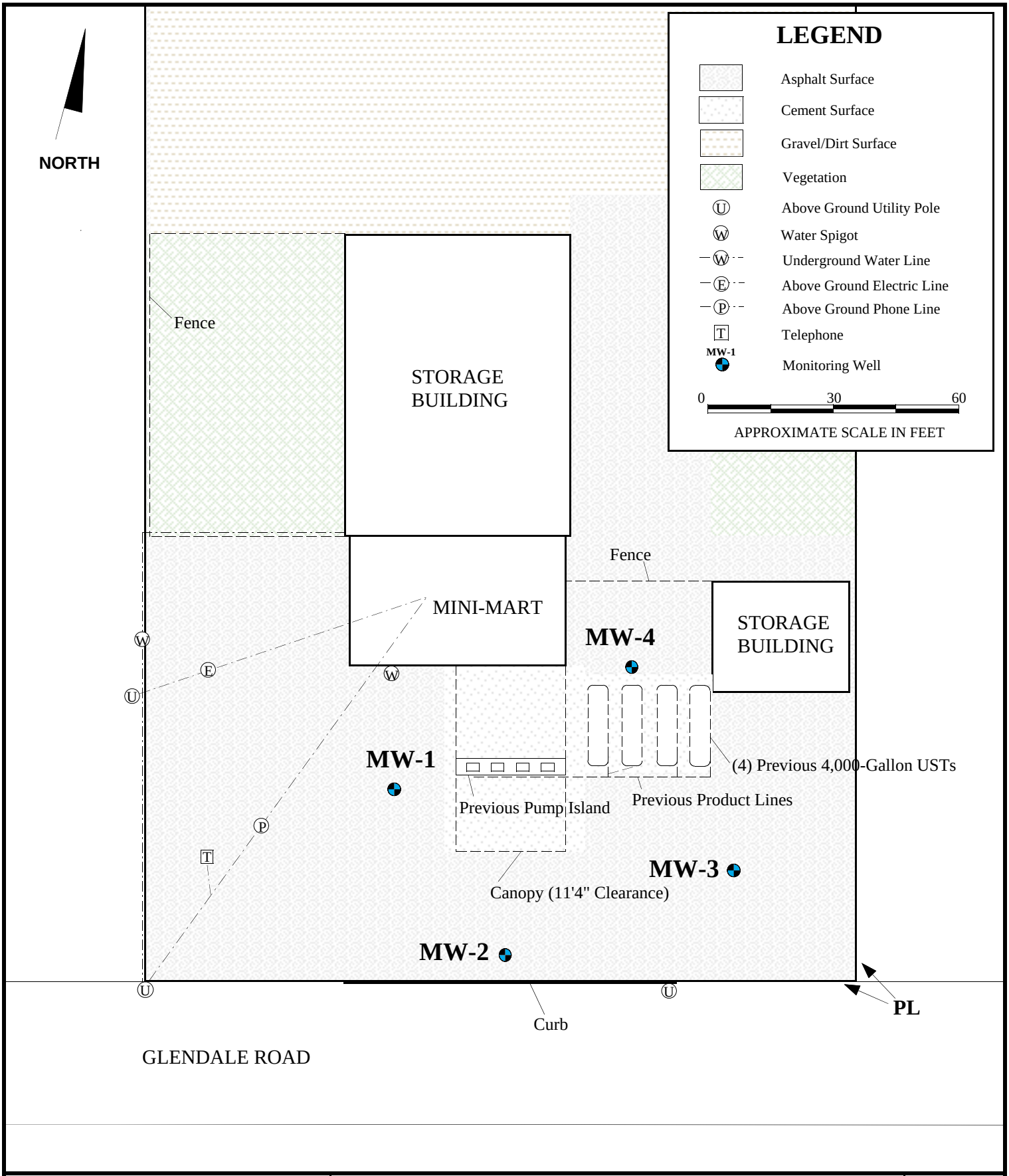
Figures

SunPacific Environmental Services
(707) 269-0884

AERIAL/TOPO MAP

Glendale 76
1497 Glendale Road
Arcata, California 95521

Project No.	Report Date	Figure
SP-150	11/14/05	1



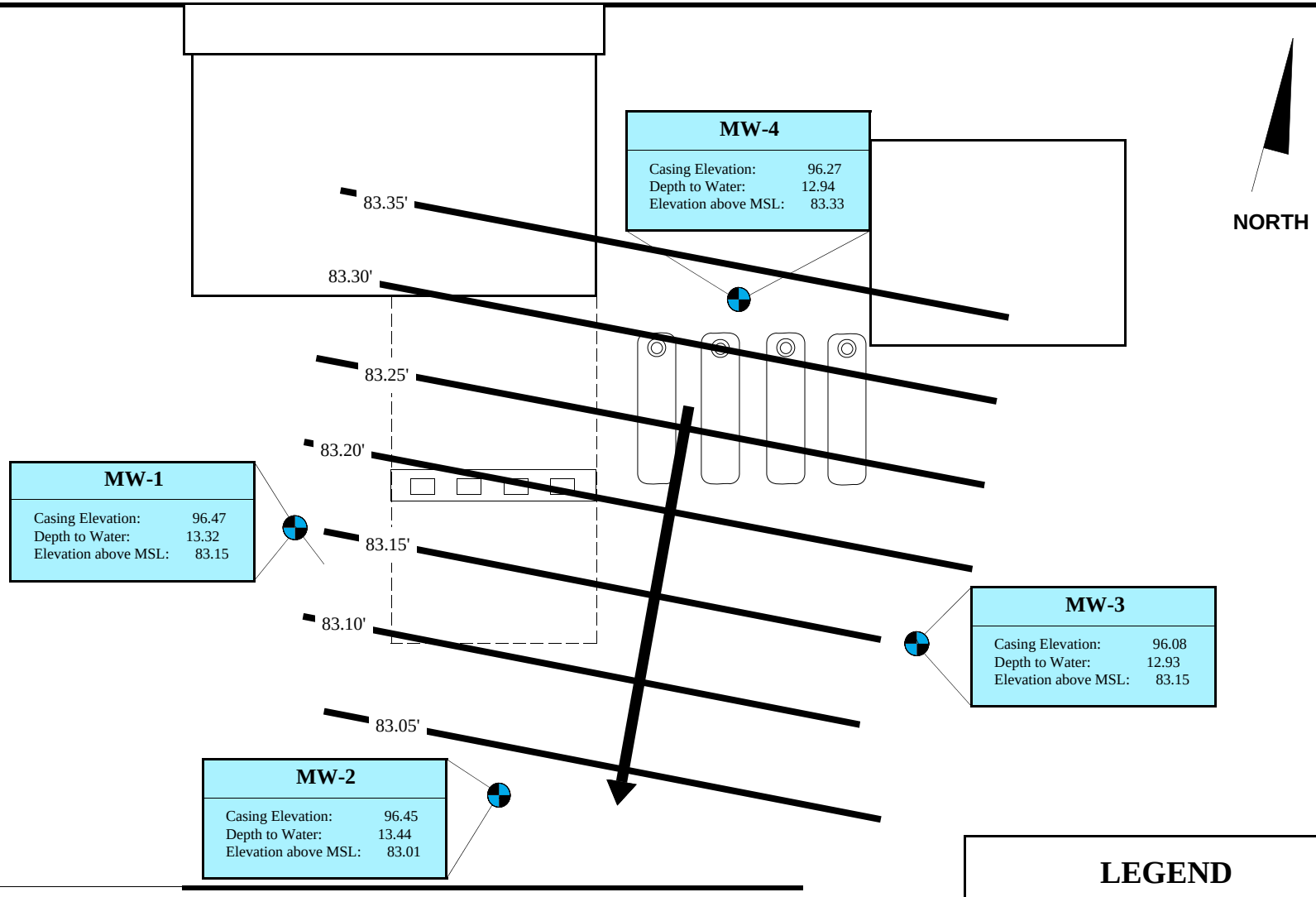
SITE PLAN

Figure 2

Environmental Services

Glendale 76
1497 Glendale Road
Arcata, California 95521

Project No.	Report Date
SP-150	11/14/2005



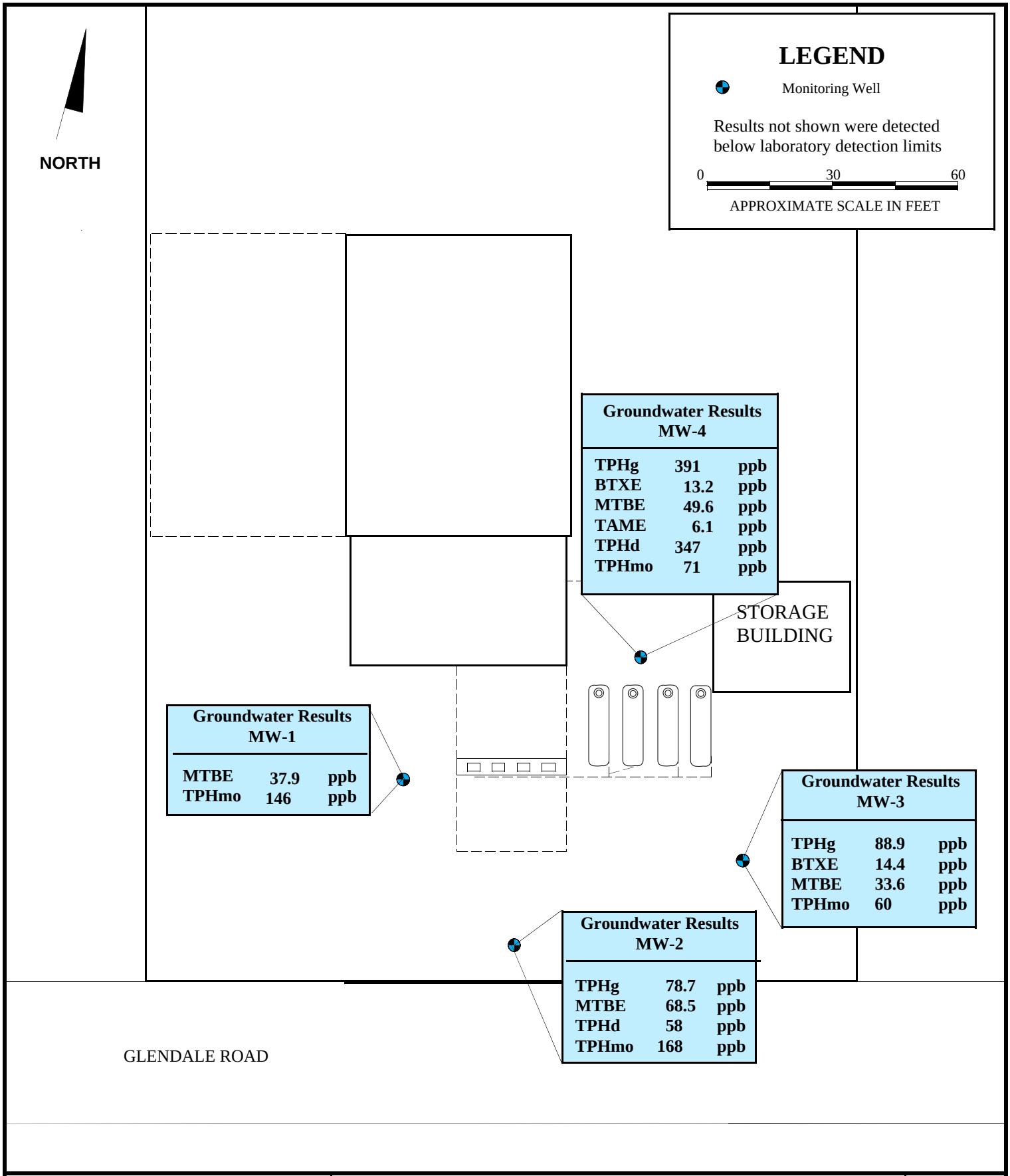
Environmental Services

GROUNDWATER LEVEL CONTOUR MAP JULY 2005

Glendale 76
1497 Glendale Road
Arcata, California 95521

Project No.	Report Date
SP-150	11/14/05

Figure 3



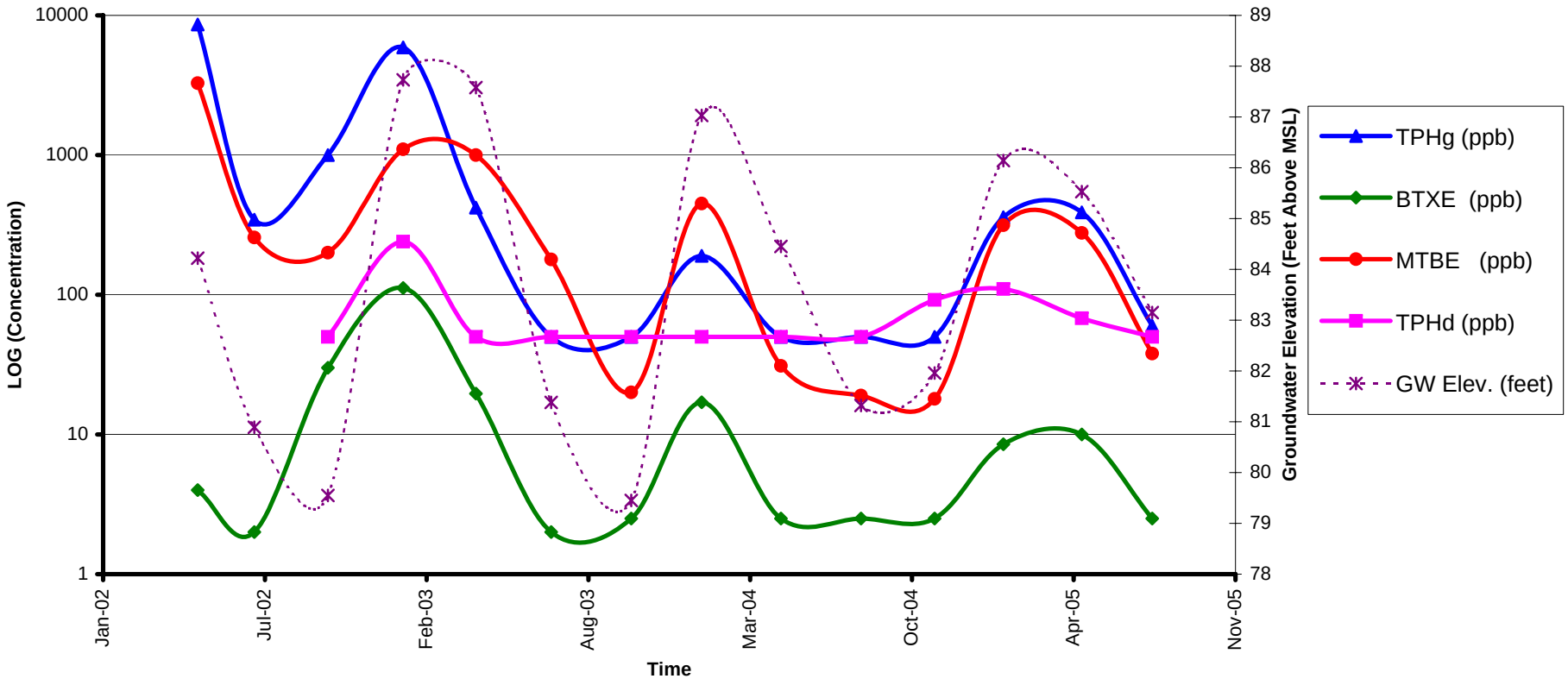
Environmental Services

GROUNDWATER ANALYTICAL RESULTS

Figure 4

Glendale 76
1497 Glendale Road
Arcata, California 95521

Project No.	Report Date
SP-150	11/14/05



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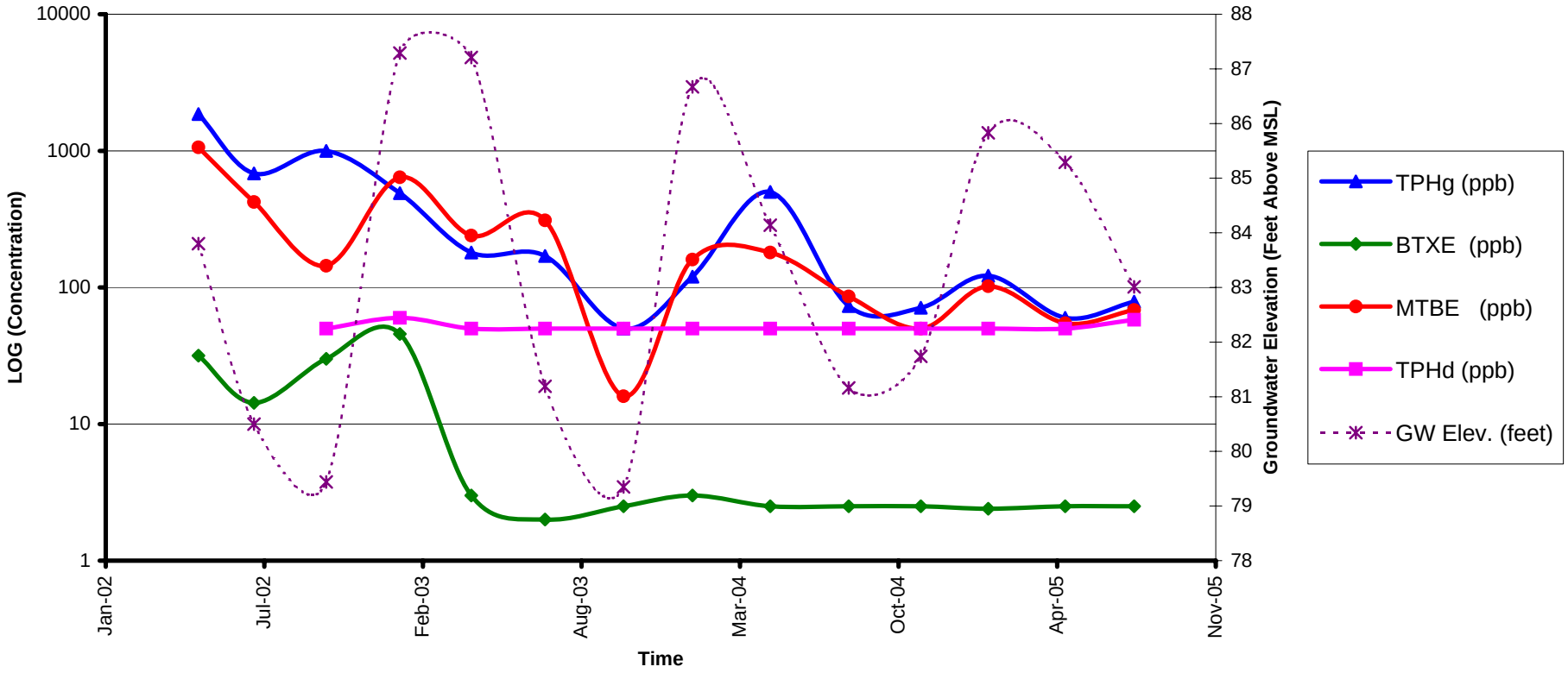
(707) 269-0884

MW-1 HYDROCARBON CONCENTRATIONS VS. TIME

Figure 5

Glendale 76
1497 Glendale Road
Arcata, California 95521

Project No.	Date
SP-150	11/14/2005



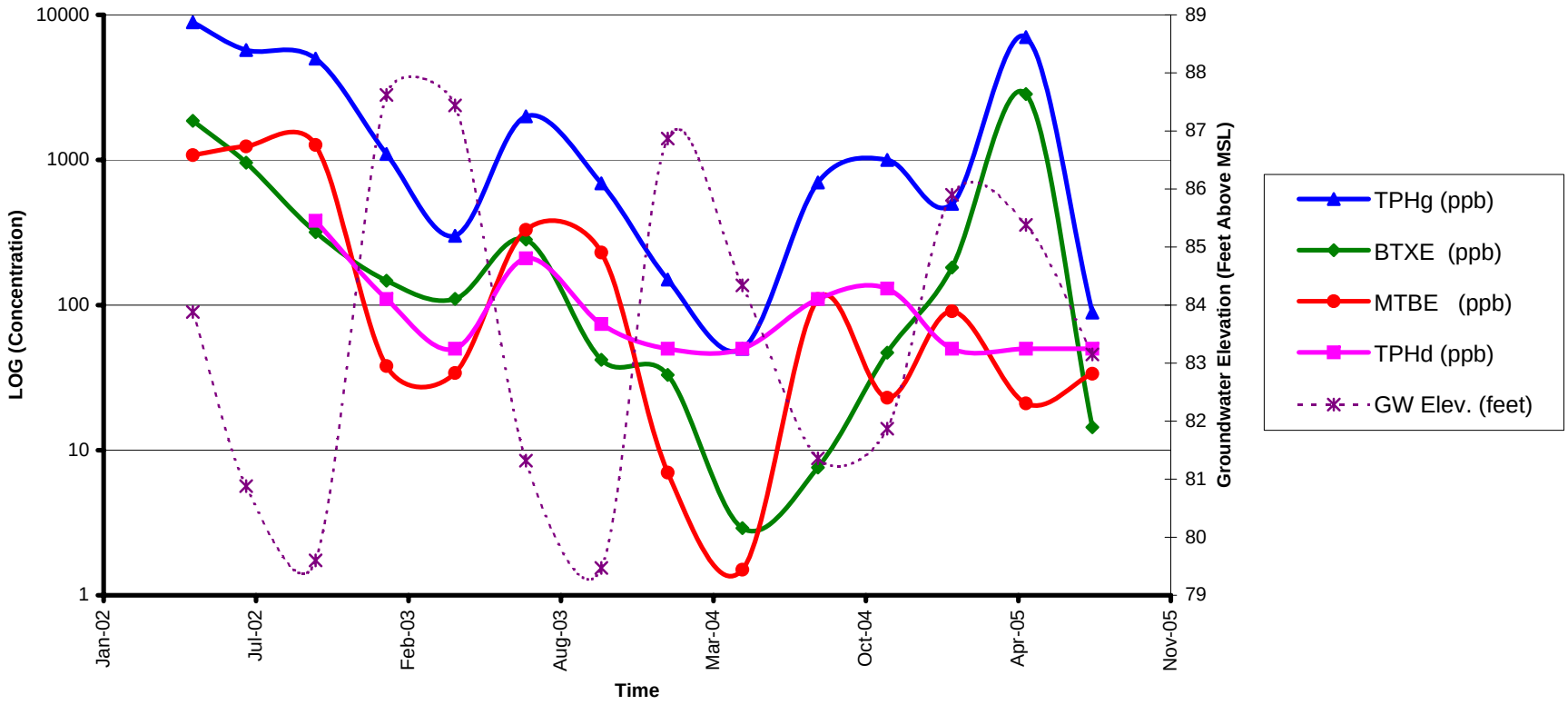
SounPacific Environmental Services
(707) 269-0884

MW-2 HYDROCARBON CONCENTRATIONS VS. TIME

Glendale 76
1497 Glendale Road
Arcata, California 95521

Project No.	Date
SP-150	11/14/2005

Figure 6



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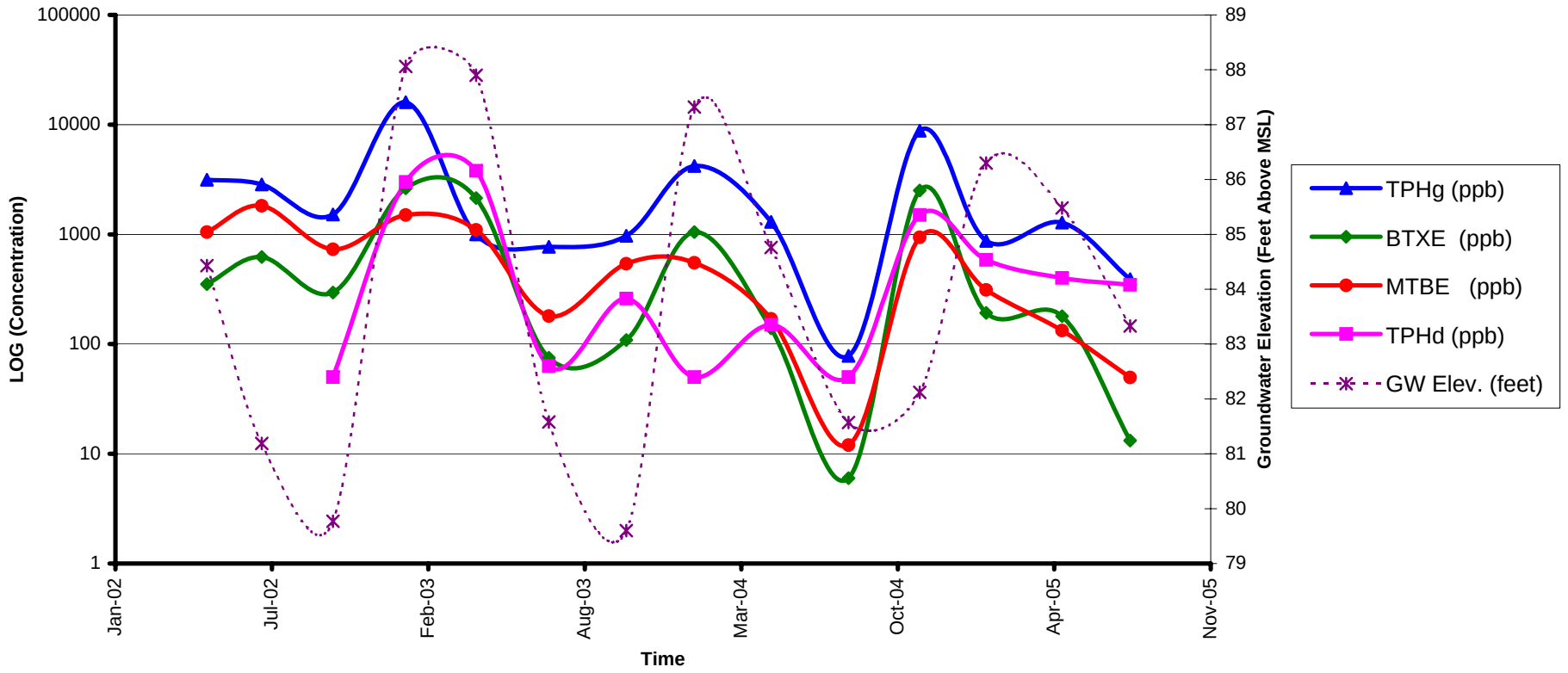
(707) 269-0884

MW-3 HYDROCARBON CONCENTRATIONS VS. TIME

Figure 7

Glendale 76
1497 Glendale Road
Arcata, California 95521

Project No.	Date
SP-150	11/14/2005



SunPacific Environmental Services
(707) 269-0884

MW-4 HYDROCARBON CONCENTRATIONS VS. TIME

Glendale 76
1497 Glendale Road
Arcata, California 95521

Project No.	Date
SP-150	11/14/2005

Figure 8

Appendices

Appendix A

basic laboratory

www.basiclab.com

voice 530.243.7234 2218 Railroad Avenue
fax 530.243.7494 Redding, California 96001

August 05, 2005

Lab ID: 5070974

Elisa King
SOUNPACIFIC
4612 GREENWOOD HEIGHTS DR
KNEELAND, CA 95549
RE: GLENDALE 76 SP-150

Dear Elisa King,

Enclosed are the analysis results for Work Order number 5070974. All analysis were performed under strict adherence to our established Quality Assurance Plan. Any abnormalities are listed in the qualifier section of this report.

If you have any questions regarding these results, please feel free to contact us at any time. We appreciate the opportunity to service your environmental testing needs.

Sincerely,

For

James E. Hawley
Laboratory Director
California ELAP Certification Number 1677

basic laboratory
www.basiclab.com
voice 530.243.7234 2218 Railroad Avenue
fax 530.243.7494 Redding, California 96001

Report To: SOUNPACIFIC
4612 GREENWOOD HEIGHTS DR
KNEELAND, CA 95549
Attention: Elisa King
Project: GLENDALE 76 SP-150
Description: MW-1 **Lab ID:** 5070974-01
Matrix: Water

Lab No: 5070974
Reported: 08/05/05
Phone: 707-269-0884
P.O. #
Sampled: 07/26/05 00:00
Received: 07/29/05 10:19

Volatile Organic Compounds

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Gasoline	ug/l	ND			60.0	EPA 8015/8260	08/02/05	08/02/05	B5H0086
Benzene	"	ND			0.5	"	"	"	"
Toluene	"	ND			0.5	"	"	"	"
Ethylbenzene	"	ND			0.5	"	"	"	"
Xylenes (total)	"	ND			1.0	"	"	"	"
Methyl tert-butyl ether	"	**37.9**			1.0	"	"	"	"
Surrogate: 4-Bromofluorobenzene		*99.6 %*		*43-155*		"	"	"	"

TPH Diesel & Motor Oil

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Diesel	ug/l	ND			50	EPA 8015 MOD	08/02/05	08/01/05	B5H0017
Motor Oil	"	**146**			50	"	"	"	"
Surrogate: Octacosane		*108 %*		*50-150*		"	"	"	"

Approved By
Basic Laboratory, Inc.
California D.O.H.S. Cert #1677

basic laboratory
www.basiclab.com
voice 530.243.7234 fax 530.243.7494
2218 Railroad Avenue
Redding, California 96001

Report To: SOUNPACIFIC
4612 GREENWOOD HEIGHTS DR
KNEELAND, CA 95549
Attention: Elisa King
Project: GLENDALE 76 SP-150
Description: MW-2 **Lab ID:** 5070974-02
Matrix: Water

Lab No: 5070974
Reported: 08/05/05
Phone: 707-269-0884
P.O. #
Sampled: 07/26/05 00:00
Received: 07/29/05 10:19

Volatile Organic Compounds

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Gasoline	ug/l	**78.7**			60.0	EPA 8015/8260	08/02/05	08/02/05	B5H0086
Benzene	"	ND			0.5	"	"	"	"
Toluene	"	ND			0.5	"	"	"	"
Ethylbenzene	"	ND			0.5	"	"	"	"
Xylenes (total)	"	ND			1.0	"	"	"	"
Methyl tert-butyl ether	"	**68.5**			1.0	"	"	"	"
Surrogate: 4-Bromofluorobenzene		*103 %*		*43-155*		"	"	"	"

TPH Diesel & Motor Oil

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Diesel	ug/l	**58**	D-02		50	EPA 8015 MOD	08/02/05	08/01/05	B5H0017
Motor Oil	"	**168**			50	"	"	"	"
Surrogate: Octacosane		*115 %*		*50-150*		"	"	"	"

Approved By

Basic Laboratory, Inc.
California D.O.H.S. Cert #1677

basic laboratory
www.basiclab.com
voice 530.243.7234 2218 Railroad Avenue
fax 530.243.7494 Redding, California 96001

Report To:	SOUNPACIFIC	**Lab No:**	5070974
	4612 GREENWOOD HEIGHTS DR	**Reported:**	08/05/05
	KNEELAND, CA 95549	**Phone:**	707-269-0884
Attention:	Elisa King	**P.O. #**	
Project:	GLENDALE 76 SP-150		
Description:	MW-3 **Lab ID:** 5070974-03	**Sampled:**	07/26/05 00:00
Matrix:	Water	**Received:**	07/29/05 10:19

Volatile Organic Compounds

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Gasoline	ug/l	**88.9**			60.0	EPA 8015/8260	08/02/05	08/02/05	B5H0086
Benzene	"	**12.4**			0.5	"	"	"	"
Toluene	"	ND			0.5	"	"	"	"
Ethylbenzene	"	ND			0.5	"	"	"	"
Xylenes (total)	"	ND			1.0	"	"	"	"
Methyl tert-butyl ether	"	**33.6**			1.0	"	"	"	"
Surrogate: 4-Bromofluorobenzene		*98.2 %*		*43-155*		"	"	"	"

TPH Diesel & Motor Oil

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Diesel	ug/l	ND			50	EPA 8015 MOD	08/02/05	08/01/05	B5H0017
Motor Oil	"	**60**			50	"	"	"	"
Surrogate: Octacosane		*115 %*		*50-150*		"	"	"	"

Approved By

Basic Laboratory, Inc.
California D.O.H.S. Cert #1677

basic laboratory
www.basiclab.com
voice 530.243.7234 2218 Railroad Avenue
fax 530.243.7494 Redding, California 96001

Report To: SOUNPACIFIC
4612 GREENWOOD HEIGHTS DR
KNEELAND, CA 95549
Attention: Elisa King
Project: GLENDALE 76 SP-150
Description: MW-4 **Lab ID:** 5070974-04
Matrix: Water

Lab No: 5070974
Reported: 08/05/05
Phone: 707-269-0884
P.O. #
Sampled: 07/26/05 00:00
Received: 07/29/05 10:19

Volatile Organic Compounds

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Gasoline	ug/l	**391**			50.0	EPA 8015/8260	08/02/05	08/02/05	B5H0086
Benzene	"	**4.4**			0.5	"	"	"	"
Toluene	"	ND			0.5	"	"	"	"
Ethylbenzene	"	**3.1**			0.5	"	"	"	"
Xylenes (total)	"	**5.2**			1.0	"	"	"	"
Methyl tert-butyl ether	"	**49.6**			1.0	"	"	"	"
Di-isopropyl ether	"	ND			0.5	"	"	"	"
Tert-amyl methyl ether	"	**6.1**			0.5	"	"	"	"
Ethyl tert-butyl ether	"	ND			0.5	"	"	"	"
Tert-butyl alcohol	"	ND			50.0	"	"	"	"
Surrogate: 4-Bromofluorobenzene		*99.4 %*		*43-155*		"	"	"	"

TPH Diesel & Motor Oil

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Diesel	ug/l	**347**	D-01, D-02		50	EPA 8015 MOD	08/02/05	08/01/05	B5H0017
Motor Oil	"	**71**			50	"	"	"	"
Surrogate: Octacosane		*115 %*		*50-150*		"	"	"	"

Approved By

Basic Laboratory, Inc.
California D.O.H.S. Cert #1677

basic laboratory

www.basiclab.com

voice 530.243.7234 2218 Railroad Avenue
fax 530.243.7494 Redding, California 96001

Report To: SOUNPACIFIC
4612 GREENWOOD HEIGHTS DR
KNEELAND, CA 95549
Attention: Elisa King
Project: GLENDALE 76 SP-150

Lab No: 5070974
Reported: 08/05/05
Phone: 707-269-0884
P.O. #

Notes and Definitions

D-01	This sample appears to contain volatile range organics.
D-02	Hydrocarbon pattern present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
<	Less than reporting limit
≤	Less than or equal to reporting limit
>	Greater than reporting limit
≥	Greater than or equal to reporting limit
MDL	Method Detection Limit
RL/ML	Minimum Level of Quantitation
MCL/AL	Maxium Contaminant Level/Action Level
mg/kg	Results reported as wet weight
TTLC	Total Threshold Limit Concentration
STLC	Soluble Threshold Limit Concentration
TCLP	Toxicity Characteristic Leachate Procedure

Approved By
Basic Laboratory, Inc.
California D.O.H.S. Cert #1677

BASIC LABORATORY CHAIN OF CUSTODY RECORD

2218 Railroad Ave., Redding, CA 96001 (530) 243-7234 FAX (530) 243-7494

LAB #: 5070974

CLIENT NAME: SounPacific

PROJECT NAME: Glendale 76

PROJECT #: SP-150

SAMPLE TYPE: W

ADDRESS: P.O. Box 13
Kneeland, CA 95549

REQUESTED COMP. DATE: Standard 8/12/05

STATE FORMS? ☐

OF SAMPLES: 4

TURN AROUND TIME: STD ☒ RUSH ☐

PAGE 1 OF 1

PROJECT MANAGER: Elisa King

elisa@sounpacific.com and others

PHONE: 707-269-0884

FAX: 707-269-0899

E-MAIL: on file

INVOICE TO: Sounpacific

PO#:

SPECIAL MAIL ☐ E-MAIL ☒ FAX ☐ EDT ☒

ANALYSIS REQUESTED

DATE	TIME	WATER	COMP	SOIL	SAMPLE DESCRIPTION	# OF BOTTLES	TPHg, BTXE, MTBE, 5-Oxys	TPHd/mo	LAB ID	REMARKS
7-26-05		X			MW-1	5	X X X	X	1	
					MW-2				2	
					MW-3				3	
					MW-4		X		4	

Global ID # T0602300135

" 13th Quarterly Event"

Send Results to

andy@sounpacific.com
greg@sounpacific.com

REP:

ID#:

SYSTEM#:

GLOBAL ID #:

QC = 1 2 3 4

PRESERVED WITH: HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ ZnAce/NaOH ☐ HCL ☒ NaThio ☐ OTHER

SAMPLED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
Elisa King	7-26-05		7-26-05
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY: (SAMPLES UNVERIFIED)	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY LAB: (VERIFIED)	DATE/TIME: 7/29/05 10:19	SAMPLES SHIPPED VIA: UPS FEDEX POST BUS OTHER	

INSTRUCTIONS, TERMS AND CONDITIONS ON BACK.

Appendix B

SounPacific
Environmental Services
(707) 269-0884

Standard Operating Procedures

Groundwater Level Measurements and Free Phase Hydrocarbon Measurements

All SounPacific staff and contractors shall adopt the following procedures any time that groundwater elevations are determined for the purposes of establishing groundwater gradient and direction, and prior to any sampling event.

Wells are to be tested for free phase hydrocarbons (free product) before the first development or sampling of any new well, and in any well that has historically contained free product.

Equipment Checklist

- ❑ Combination water level / free phase hydrocarbon indicator probe (probe)
- ❑ Gauging Data / Purge Calculations Sheet
- ❑ Pencil or Pen/sharpie
- ❑ Disposable Gloves
- ❑ Distilled Water and or know water source on site that is clean
- ❑ Alconox (powder) or Liquinox (liquid) non-phosphate cleaners—do not use soap!
- ❑ Buckets or Tubs for decontamination station
- ❑ Tools necessary to access wells
- ❑ Site Safety Plan
- ❑ This Standard Operating Procedure
- ❑ Notify Job site business that you will be arriving to conduct work.

Procedure

1. Review Site Safety Plan and utilize personal protection appropriate for the contaminants that may be encountered.

2. Access and open all monitoring wells to be measured. Allow wells to equilibrate for approximately 15 minutes before taking any measurements.

3. Decontaminate probe with Alconox or Liquinox solution, and rinse with distilled water.

4. Determine the diameter of the well to be measured and indicate this on the Gauging Data / Purge Calculations Sheet.

5. Words of caution: Please be careful with water level and product meters probes are not attached with high strength material so please make sure to avoid catching the end on anything in the well and make sure not to wind reel to the point that it could pull on the probe. ***If product is suspect in a well, go to step 6, if no product is suspected go to step 7 below.***

6. **When product is present or suspected:** use the product level meter. Clip the static charge clamp to the side of the well casing. Then lower probe into the well through the product/water interface about one foot if possible. Then slowly raise the probe back up through the product/water interface layer and record the level as the tone changes from solid to broken-record this level in the Gauging Data / Purge Calculations Sheet to the nearest 0.01 foot (DTP). Continue to raise the probe up through the product until the tone stops completely-record this level on the Gauging Data / Purge Calculations Sheet to the nearest 0.01 foot (DTW). Then go to step 8.

7. **When no product is present or suspected:** If no free product is present, record the depth of the water (to the nearest 0.01 foot) relative to the painted black mark on the top of the well casing. Leave the probe in the well just a hair above the water level to ensure the well as equilibrated. As the well rises, the tone will sound. Make sure no increase in water levels have occurred in over a ten-minute period. Water levels can lower as well as rise. Make sure you note when the level you keep lowering the probe to has remained stable for at least ten minutes. Once this has been accomplished, please record this level in the Gauging Data / Purge Calculations Sheet to the nearest 0.01 foot (DTW).

8. Turn off the probe, and use the probe to determine the depth to the bottom of the well relative to the top of the well casing. This is the depth to bottom measurement (DTB).

9. Decontaminate probe and tape by washing in an Alconox/Liquinox solution ***(read directions on solution for ratio of water to cleanser)*** and use the toothbrush provided to remove any foreign substance from the probe and tape. Then triple rinse probe and tape with clean water and then proceed to take measurements in the next well.

10. If sampling is to occur, proceed to implement SounPacific's Standard Operating Procedure for Monitoring Well Purging and Sampling. If no sampling is to be performed, close and secure all wells and caps.

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Standard Operating Procedures

Monitoring Well Purging and Groundwater Sampling

All SounPacific employees and contractors shall adopt the following procedures any time that groundwater samples are to be taken from an existing groundwater monitoring well.

Prior to the implementation of these procedures, the groundwater level **MUST** be measured and the presence of free phase hydrocarbons determined in accordance with SounPacific's Standard Operating Procedures for Groundwater Level Measurements and Free Phase Hydrocarbon Measurements.

Equipment Checklist

- ❑ **Gauging Data / Purge Calculations Sheet used for water level determination**
- ❑ Chain of Custody Form
- ❑ pH/ Conductivity / Temperature meter
- ❑ Pencil or Pen
- ❑ Indelible Marker
- ❑ Calculator
- ❑ Disposable Gloves
- ❑ Distilled Water
- ❑ Alconox/liquinox liquid or powdered non-phosphate cleaner
- ❑ Buckets or Tubs for decontamination station
- ❑ Bottom-filling bailer or pumping device for purging
- ❑ Disposable bottom-filling bailer and emptying device for sampling
- ❑ String, twine or fishing line for bailers
- ❑ Sample containers appropriate for intended analytical method (check with lab)
- ❑ Sample labels
- ❑ Site Safety Plan
- ❑ Tools necessary to access wells
- ❑ Drum space on site adequate for sampling event

Procedure

1. Review Site Safety Plan and utilize personal protection appropriate for the contaminants that may be encountered.

2. Measure groundwater levels and check for the presence of free product in accordance with the Standard Operating Procedures for Groundwater Level Measurements and Free Phase Hydrocarbon Measurements.

Purging

3. Calculate and record the volume of standing water in each well using the information provided on the Gauging Data / Purge Calculations sheet.
   (DTB-DTW) x Conversion Factor = Casing Volume.

4. The purge volume shall be at least three times and no more than seven times the volume of standing water (the casing volume).

5. Purge the well by bailing or pumping water from the well into a calibrated receptacle, such as a five gallon bucket or tub with markings to indicate one gallon increments. Collect purgeate in a 55 gallon labeled drum and store on site. Drum labels should include the date, contents, site number, and SounPacific's name and telephone number.

6. Take measurements of pH, conductivity, temperature, and visual observations to verify the stabilization of these parameters. At least five measurements of these parameters should be made throughout the purging process. The parameters shall be considered stabilized if successive measurements vary by less than 0.25 pH units, 10% of conductivity in μS, and 1°C (or 1.8°F). Continue purging until at least three times the casing volume has been removed, and the measured parameters have stabilized as indicated above. Do not exceed seven casing volumes.

7. Take a final depth to groundwater measurement and calculate the casing volume of the recharged well. Ideally, the casing volume should have recharged to at least 80% of the original measured casing volume before sampling commences. If due to slow recharge rates it is not feasible to wait for the well to fully recharge, then note this on the Gauging Data / Purge Calculation Sheet and proceed to sample following the procedure below.

Sampling

8. **After completing groundwater measurement, and checking for free product if necessary, in accordance with SounPacific's Standard Operating Procedures for Groundwater Level Measurements and Free Phase Hydrocarbon Measurements, and after purging monitoring wells as described above, groundwater samples may be collected.**

9. Slowly lower a clean, previously unused disposable bailer into the well water approximately half of the bailer length, and allow the bailer to slowly fill.

10. Withdraw the full bailer from the monitoring well and utilize the included (clean and unused) bottom-emptying device to fill the necessary sample containers, and seal the container with the included PTFE (Teflon) lined cap.

11. When filling VOAs, fill the VOA completely full, with the meniscus rising above the rim of the bottle. Carefully cap the VOA and invert it and gently tap it to determine whether air bubbles are trapped inside. If the VOA contains air bubbles, refill the VOA and repeat this step.

12. All samples shall be labeled with the Sample ID, the Sample Date, and the Sample Location or Project Number. Use an indelible marker for writing on sample labels.

13. Record all pertinent sample data on the Chain of Custody.

14. Place samples in an ice chest cooled to 4°C with ice or "blue ice". Bottles should be wrapped in bubble wrap, and VOA's should be inserted in a foam VOA holder to protect against breakage. Samples are to be kept at 4°C until delivered to the laboratory. Any transference of sample custody shall be indicated on the Chain of Custody with the appropriate signatures as necessary.

15. Utilize clean, previously unused gloves, bailer and line, and bottom-emptying device for each well sampled.

16. When finished with all sampling, close and secure all monitoring wells.

17. Leave the site cleaner than when you arrived and drive safely.

Appendix C

GAUGING DATA/PURGE CALCULATIONS

Job Site: Glendale 76 Job No.: SP-150

Event: "13th Quarterly Event" Date: 7-26-05

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WELL NO	DIA. (in.)	DTB (ft.)	DTW (ft.)	ST (ft.)	CV (gal.)	PV (gal.)	SPI. (ft.)	Bailer Lmads	Notes
MW-1	2	19.08	13.32	5.76	0.92	2.76			
MW-2	2	19.81	13.44	6.37	1.01	3.05			
MW-3	2	19.29	12.93	6.36	1.01	3.05			
MW-4	2	19.81	12.94	6.37	1.01	3.05			Hydrocarbon odor
									Drum is full

Explanation:
DIA. = Well Diameter
DTB = Depth to Bottom
DTW = Depth to Water
ST = Saturated Thickness (DTB-DTW)
CV = Casing Volume (ST x cf)
PV = Purge Volume (standard 3 x CV, well development 10 x CV)
SPI. = Thickness of Separate Phase Liquid

Conversion Factors (cf):
2 in. dia. well cf = 0.16 gal./ft.
4 in. dia. well cf = 0.65 gal./ft.
6 in. dia. well cf = 1.44 gal./ft.

Sampler: Elisa King

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Well Gauging/Sampling Report

Sheet 1 of 4

Date: 7-26-05 Project Name: Glendale 76 Project No: SP-150 Well Number: MW-1

Analyses Tested: TPHd, TPHmo, MTBE, TPHg, BTXE

Sample Containers: (2) 1-Liter amber bottles, (3) HCl VOA's

Purge Technique: ☐ Bailer ☑ Pump

Sounder Used: ☐ Water Meter ☑ Interface Meter

Water & Free Product Levels

Time	Depth to Water	Depth to Product	Notes:
2:00	13.32		
2:30	13.32		

Field Measurements

Time	Total Vol. Removed/(gal)	pH	Temp/(F)	Cond./(ms/cm)	DO/(mg/L)	DO/(%)	
3:19	0	7.76	60.59	0.168	~~11.09~~	11.0	
15:30 3:24	1	6.85	60.35	0.163	2.02	20.4	
3:35	2	6.63	61.00	0.157	1.30	13.2	
15:38 3:37	3	6.44	60.02	0.158	0.75	7.5	

Field Scientist: Elisa King

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Well Gauging/Sampling Report

Sheet 2 of 4

Date: 7-26-05 Project Name: Glendale 76 Project No: SP-150 Well Number: MW-2

Analyses Tested: TPHg, BTXE, MTBE, TPHd, TPHmo

Sample Containers: (2) 1-liter amber bottles, (3) HCL VOA's

Purge Technique: ☐ Bailer ☑ Pump

Sounder Used: ☐ Water Meter ☑ Interface Meter

Water & Free Product Levels

Time	Depth to Water	Depth to Product	Notes:
2:08	13.44		
2:34	13.44		

Field Measurements

Time	Total Vol. Removed:(gal)	pH	Temp/(F)	Cond./(ms/cm)	DO/(mg/L)	DO/(%)	
3:55	0	6.50	61.43	0.128	0.52	5.3	
3:58	1	6.39	61.55	0.137	0.91	9.3	
4:04	2	6.19	61.06	0.148	0.56	5.7	
4:08	3.25	6.26	61.84	0.147	0.91	9.3	

Field Scientist: Elisa King

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Well Gauging/Sampling Report

Sheet 3 of 4

Date: 7-26-05 Project Name: Glendale 76 Project No: SP-140 Well Number: MW-3

Analyses Tested: TPHg, BTXE, MTBE, TPHd, TPHmo

Sample Containers: (2) 1-Liter amber bottles, (3) HCL VOA'd

Purge Technique: ☐ Bailer ☑ Pump

Sounder Used: ☐ Water Meter ☑ Interface Meter

Water & Free Product Levels

Time	Depth to Water	Depth to Product	Notes:
2:18	12.92		
2:38	12.93		

Field Measurements

Time	Total Vol. Removed/(gal)	pH	Temp/(F)	Cond./(ms/cm)	DO/(mg/L)	DO/(%)	
4:30	0	6.28	60.08	0.038	0.37		
4:34	1	6.11	60.35	0.043	0.45		
4:37	2	5.94	60.22	0.042	0.50		
4:41	3.25	5.89	59.85	0.041	0.57		

Field Scientist: Elisa King

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Well Gauging/Sampling Report

Sheet 4 of 4

Date: 7-26-05 Project Name: Glendale 76 Project No: SP-150 Well Number: MW-4

Analyses Tested: TPHg, BTXE, 5-Oxy's, TPHd, TPHmo

Sample Containers: (2) 1-Liter amber bottles, (3) HCL VOA's

Purge Technique: ☐ Bailer ☑ Pump

Sounder Used: ☐ Water Meter ☑ Interface Meter

Water & Free Product Levels

Time	Depth to Water	Depth to Product	Notes:
2:24	12.94		Hydrocarbon odor
2:43	12.94		

Field Measurements

Time	Total Vol. Removed/(gal)	pH	Temp/(F)	Cond./(ms/cm)	DO/(mg/L)	DO/(%)	
5:00	0	6.48	59.10	0.142	0.58	5.8	
5:04	1	6.41	58.69	0.150	0.67	6.0	
5:07	2	6.37	58.49	0.140	0.66	6.5	
5:12	3.25	6.31	58.49	0.141	0.64	6.3	

MW#4

Field Scientist: Elisa King